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SCIENCE NEWS-LETTER

The Weekly Summary of Current Science

A SCIENCE SERVICE PUBLICATION

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LEAVES FROM A LIVING PAST

Evidence of Hard Times in Arizona During the Permian

(See page 147)

Vol. XVII No. 465

Punch Here to Fit Square Neck Letter Binder Cover

Ink Blots Show Causes of Bad Behavior

Psychiatry

Ingenious Test Aids Analysis of Personality

INK blots, ordinary symbols of carelessness, assumed new importance when they were discussed by S. J. Beck of the Boston Psychopathic Hospital at the American Orthopsychiatric Association meeting in New York. Specialists assembled to talk of the newest psychiatric methods in preventing and dealing with delinquency heard a description of ten carefully planned splashes of black and colored ink which have been devised to aid in diagnosing personality. The person tested looks at each blot and interprets it as his fancy, his intelligence, and his experience dictate.

The test is the first attempt ever made to get a sample of an individual's intelligence, his emotional slants on life, his behavior, all at once. A Swiss psychiatrist, Hermann Rorschach, devised the test, which Mr. Beck is now experimenting with to determine its usefulness in this country. The test appears to be a reliable indicator of abnormal personality types, he finds.

The ink blot test works well with problem children who balk at most tests and inquisitions, Mr. Beck's experiments show. The boy who plays truant for no reason that his family can fathom will freely tell the examiner about the flags, the cat, or the ice cream cone that he sees in the splotches, and the examiner gathers facts about him as he talks.

Lonely personalities of a type heretofore overlooked by specialists who deal in warped humanity were described by Dr. Karl Menninger, of Topeka. This type includes such characters as Lord Byron and Nathaniel Hawthorne, both of whom were driven by circumstances into terrible loneliness. Neurotics and psychotics choose isolation and are not really lonely, Dr. Menninger stated. But this other type of person has been so overpowered by childhood influences such as eccentric parents or physical blemishes that he becomes incapable of mixing with the world comfortably. Psychiatric treatment works wonders with the less severely injured individuals of this type of isolated personality, Dr. Menninger said.

A plea that growing boys need intelligent help from adults at the critical times when they pass from the age of individual play to the gang age and again when they shed the gang and emerge as adolescents, was made by Dr. Paul H. Furfey, of the Catholic University of America, in a report of his studies with normal boys from six to sixteen years.

Dr. Furfey deplored the present tendency among psychologists to deny the existence of distinct periods of development.

Little boys in the individual age enjoy imaginative play and associate contentedly with little girls, he has found. At this age boys take no interest in clubs. Between eight and eleven years, the gang age begins with its enthusiasm for teams and for clubs such as the Boy Scouts. Girls are no longer tolerated as playmates. Adolescence is frequently marked by the dawn of a love affair, but a more characteristic trait is the sudden distaste for boys' clubs of the scout type. There is a critical attitude toward authority. Team games are played but the boy demands uniformed teams, coaches, and good officials.

DISEASES that we suffer from as children may set a mark on our personalities, so that from that time on we are different individuals. This is clearly demonstrated by a case of two girls born as identical twins and thus having the same heritage, but who have become almost exact opposites of each other in character.

Dr. H. W. Newell, of the Virginia State Mental Hygiene Clinic, traced the histories of these two human beings who started out in life from practically the same start. He was told that one of the girls contracted infantile paralysis at two years of age. Her parents did not coddle their children, but went to the opposite extreme in encouraging independence. So they did little to help this handicapped child to "come back." Her physical disabilities made her slower at her studies than her more healthy sister, and the healthy capable twin enjoyed the favor and approval of the parents.

As a result of this one siege of babyhood sickness and the consequences of it, the twin who was sick now lacks self confidence and does not mix socially with other children. She feels herself inferior to her twin sister and is envious of the other's achievements. The twin who escaped the illness is a duplicate of the other in appearance, but she is the reverse of the picture in personality. She makes friends easily, is cheerful and self confident. In addition to personality differences, the twin who was not handicapped by disease has developed mentally beyond the twin who was sick.

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The Answer Is

In This Issue

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Leaves Older Than Grand Canyon Found

Paleontology

Fossil Ferns Tell of Weather in Permian Age

Dr. David White and Dr. John C. Merriam, at a quarry in the Grand Canyon which yielded numbers of leaf-prints in mud that had hardened into stone. A specimen of Supaia is leaning against Dr. White's foot.

FOSSIL remains of plants found in the walls of the Grand Canyon show that many millions of years ago stunted vegetation of very singular aspect grew in a great red sandy floodplain under a semi-arid climate in northern Arizona. This great red land has been found by Dr. David White of the U. S. Geological Survey, who has been studying the deposits and their remains of extinct plants for the Carnegie Institution, to have continued a long time before the region sank beneath the sea and was covered with the seashell-bearing limestones hundreds of feet in thickness which form the upper part of the walls of the Canyon. These limestones pave the high plateau through which the Canyon was and is still being cut, and they underlie the foundations of the hotels and camps on both sides of the great abyss.

Most of the newly discovered relics of this ancient growth represent seed-ferns. These were fernlike plants that bore real seeds instead of spores. The rocks that contain them, known geologically as the Hermit shale, were laid down as fine-grained river silts long before the Grand Canyon was even a crease on the surface of the desert plateau. They date from the Permian, the period immediately following the Coal Age.

Some of the plants are found in beds of the same geological epoch in eastern North America and in Europe as far east as the Ural Mountains. One unique group of forms is most closely connected with a flora that covered the region of tremendous glaciers in ancient times which spread over portions of India, Australia, South Africa and of South America. Remnants of this flora should be among the specimens of fossil plants which Professor Gould of the Byrd Antarctic Expedition may have found in the Queen Maud Range which he explored in Antarctica.

The thick layers of ripple-marked silt indicate that the rivers of the region at that time carried considerable volumes of water, at least part of the time. Some of them are marked with deep "suncracks" telling of the exposure of the mud to intense heat and rapid evaporation. The molds of salt crystals testify to seasons of intense drought, while, in addition to the impressions of raindrops, the deep pits and pockmarks on the surface of some of the shales bear record of hailstorms. All this argues a fairly dry though not necessarily arid region, visited by occasional though short-lived periods of rainfall, followed by "fair and warmer." The droughtiness of the ancient climate is also argued from the character of the leaves. Though most of these are fernlike, they are severely simple in outline, lacking the fine feathery subdivisions that mark such leaves when they grow in a moist climate. Many of them are fuzzy and their stems are covered with scales or fine spines, suggestive of desert growth. Some of them have thickened blades, and at least one species appears to have had the habit of curling into quills when it dried. All these characters earmark the plants of dry-air habitats.

Besides the fernlike plants, there are several curious forms of branches with twigs of stunted coniferous trees. All the different kinds found in the deposits became extinct many millions of years ago. Some of the genera and species have never been found in any other region. With the remains of plants are associated wings of insects, trails of worms, and large numbers of remarkably distinct footprints of different primitive amphibia, suggestive of the living "mud-puppy," and of reptiles. Some of the footprints are of rather large size; others are very small and delicate.

In naming his new species and genera, Dr. White has given recognition to local place-names and to persons associated with the Grand Canyon. The principal new genus is a seed-fern which he has called *Supaia*, from Supai, an old Indian name which has been applied to one of the rock formations in the Canyon wall. One species of this new genus, shown on the cover of this issue, has been named *Supaia merriami* in honor of Dr. John C. Merriam, president of the Carnegie Institution of Washington, and another has been called *Supaia sturdevantii*, in memory of a former park naturalist who was drowned in the river while on an exploring trip through the Canyon.

Two other new genera have been named *Yakia*, from an Indian place-name, and *Eltovaria*, in memory of a Spanish explorer of the Southwest.

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Potent Rulers of Bone and Muscle—
Parathyroid Glands

Endocrinology

By Jane Stafford

The endocrine glands have intrigued the interest of scientist and layman alike. In spite of considerable research, there is still much uncertainty in the scientific mind, and consequently much mystery in the popular mind, regarding the exact nature and functions of these important organs. Science Service has prepared a series of stories, of which this is the third, giving some of the facts and theories about these glands. The first two have appeared in previous issues of the News-Letter and the concluding story will appear next week.

SHE ached all over. And then she began to waddle like a duck when she walked. To the alarm and astonishment of her friends she actually got a bit shorter in height. This young married woman in her mid-thirties was a puzzle to the doctors and a source of alarm to her family.

And because she had these pains, grew pale, became unduly nervous and lost weight, the X-ray, searching instrument, was turned on her. Strangely, her bones were softening and her very skeleton was becoming deformed. That is what the X-ray photographs showed.

As physicians studied her unhappy case the unfortunate patient became weaker. Various treatments brought only temporary relief. She became bed-ridden and could not walk a step even with the aid of crutches.

Finally her physicians pronounced: "Hyperparathyroidism." Her parathyroid glands, four little grain-of-wheat organs located near the Adam's apple, were pouring too much secretion into her body.

One of the constantly recurring miracles of modern surgery was performed. A tumor of the glands that was causing their over-activity was removed by an operation and the patient was on the route to renewed health.

"Within two weeks she was able to abandon crutches and take walks of considerable length around the hospital grounds, merely with the help of a cane," Dr. Russell M. Wilder of Mayo clinic was able to write in his report of her case to the Association of American Physicians.

The patient was able to return home and followed simple dietary and medical instructions. She continued to gain strength, her bones hardened and she had no more pain.

In this case, a tumor had caused an over-functioning of the four small glands of the neck, but the opposite condition, occurring when these glands become injured or destroyed, is just as serious. In the latter case, muscle spasms, convulsions and frequently death occur.

The four parathyroids are each about a quarter of an inch long and half as big in diameter—about the size of wheat grains. They are located two on each side of and back of the thyroid gland. Often they are imbedded in the tissue of the thyroid. Until 1879, they were not recognized as separate organs, although they are not like the thyroid in either structure or function. At that time Ivar Sandstrom, a Swedish anatomist, discovered that they were not part of the thyroid gland and described their anatomical characteristics. Little, however, was known about their function.

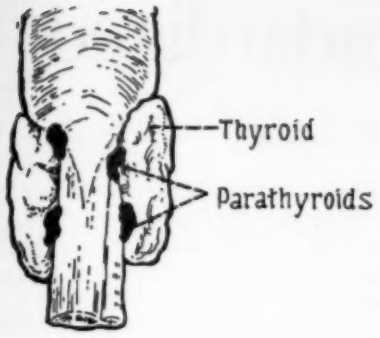
Early operations for the removal of the thyroid gland were sometimes accompanied by alarming symptoms, quite often with a fatal ending, even when the operation had seemed successful. The symptoms set in about 36 hours after the operation. The patient was depressed, had tingling and numbness of fingers and toes. Facial twitchings and muscle spasms followed, the latter developing into convulsive seizures, in which very characteristic positions of hands and feet were assumed.

The convulsive seizures or fits sometimes occurred frequently but more often at long intervals. The patient lost weight and his heart, respiratory tract and body temperature were all affected by the disease. Nearly always death followed. The condition is known as tetany, not to be confused with tetanus or lockjaw, an entirely different disease.

Dr. Eugene Gléy, French physiologist, who showed that tetany resulted when the parathyroid glands were removed.

However, soon after the parathyroids had been identified by Sandstrom, a French physiologist, Eugene Gléy, showed that tetany resulted when they were removed with the thyroid in surgical operations or in experimentation. The parathyroids are so close to the thyroid and often so imbedded in it that it was difficult for surgeons to distinguish the one from the other while in the midst of the operation. Fortunately the glands are extremely potent, so that a very tiny piece of even just one gland, left behind by the surgeon's knife, suffices to protect the patient and prevent the development of tetany.

These small glands are still the subject of investigation and study. Scientists are not entirely satisfied that they know what the functions of the parathyroids actually are. One group of investigators holds that the parathyroids control the calcium, or lime, of the body. When tetany occurs or is produced in an animal or man, administration of either the glandular substance or of calcium salts relieves the condition. The theory is that when the glands are underactive and do not secrete enough of their hormone, the nerve and muscle tissues do not get enough calcium and the tetanic seizures result. One investigator found that the brain of an animal dying in tetany had a low calcium content. Another scientist placed muscle tissue in a solution which resembles the body fluids in mineral content and which contains among other things salts of sodium, potassium and calcium. Ordinarily muscle tissue would not show any change when placed in this solution, but when a muscle was placed in such a solution from which the calcium had been omitted, the muscle underwent contractions resembling those of tetany. These observations tend to strengthen the theory of the role of the parathyroids in calcium regulation.



The parathyroids lie close to the thyroid gland in the neck. They are about the size of a wheat grain.

When animals have lost their parathyroid glands, their blood has much less calcium in it, there is an increased excretion of calcium, and the animals show symptoms of tetany which are relieved by injections of calcium.

The parathyroids, like most other glands, secrete a hormone which affects the body processes. This hormone has not yet been synthesized in the laboratory but an extract from the glands, which is very potent, has been isolated by Dr. J. B. Collip of the University of Alberta in Canada. This extract has been used successfully on both animals and humans who have had tetany. The symptoms are relieved and the amount of calcium in the blood is restored to normal when this extract is injected under the skin. Another method of relieving tetany, which has sometimes been successful, is that of transplantation or gland grafting.

These glands can do their work when they are in other parts of the body besides the neck, scientists have found. Theoretically, this would seem to mean that if all the parathyroids are removed accidentally and tetany develops, the surgeon can quickly graft a bit of gland into another part of the body and relieve the condition. Actually it was found to be not such a simple matter and the procedure met with indifferent success until comparatively recent times. Soon after Gléy showed that it was the removal of these glands that caused tetany, scientists tried to relieve the condition with gland grafts, but the early efforts were not very successful.

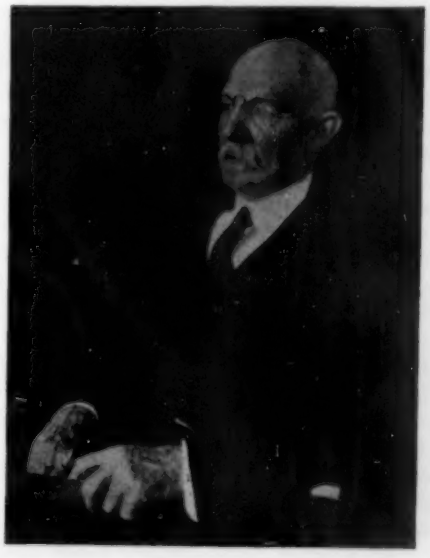
It was Dr. William Stewart Halsted, distinguished American surgeon, who did the most important work in this field. He was successful in nearly two-thirds of his auto-transplantations in a large series of dogs. In this operation, the animal's own gland is grafted onto another part of the body. In a successful transplantation, the gland continues to function in its new position. Halsted found that when his transplantations failed it was because the animal did not require the transplanted tissue. The glandular tissue that had been left in the neck was sufficient to carry on normal functioning and the transplanted tissue lost its potency from lack of use. In order to obtain a successful transplantation it was necessary to remove all the remaining parathyroids at the time of transfer or to injure them in some way, so that a glandular deficiency would be created. Failure to recognize this fact and to act accordingly explained why previous investigators had not had better results with their grafts.

Halsted showed what a small amount of the gland was really necessary to protect the animal from tetany. He was able to keep one dog alive and in good condition for several months with a graft measuring one-quarter by one-half millimeter. It takes about 2 millimeters to make an eighth of an inch, so this graft was barely visible to the naked eye. However, when this tiny bit of glandular tissue was removed the animal died. Transplants of glands from one animal to another were unsuccessful in 38 dogs, Halsted reported.

These gland grafts cannot be made just anywhere in the body. One essential condition for success is that there be a readily available blood supply so that the transplanted tissue will get nourishment quickly. Various experimenters have tried various positions for the graft. The marrow of the inner bone of the leg, the intestine, the thyroid gland and muscle have all been tried. Halsted placed them under a muscle of the abdomen.

A few cases of successful grafts of the parathyroid on human beings have been reported. Grafts from one person to another have generally not been successful, but where a bit of the patient's own gland is used the results seem to be favorable. Quite recently at a meeting of the American Association for the Study of Goiter, a Boston surgeon, Dr. Richard B. Cattell, reported successful transplants of parathyroid tissue in one patient. At the Lahey Clinic where he works, in every operation for the removal of a thyroid gland, the gland is examined during the operation for the parathyroids that may have been removed with it. If any of the latter are found, they are immediately grafted onto another part of the patient's body, so as to prevent the possible development of tetany. If not all of the parathyroid tissue had come away with the thyroid, the gland graft would not take, but in that case the remaining parathyroid tissue would have been enough to protect from tetany. However, in the event that all the parathyroids had been removed or injured to such an extent that tetany would have developed, the graft would probably have been successful and would have protected the patient against tetany.

While the evidence is strong for the theory that the parathyroid regulates the body's supply of calcium and that tetany is the result of disturbed calcium metabolism, due to disorder of these glands, other authorities believe that tetany is the result of a poison, called guanidin. According to this theory, the parathyroids regulate the supply of guanidin in the body and prevent its development in undue amounts. Still another theory is that the symptoms of tetany result when the balance between acidity and alkalinity in the blood and body (*Turn to page* 158)



Dr. William Stewart Halsted, distinguished American surgeon, who did important experiments in transplanting the parathyroid glands in animals. This method is now being applied to human beings who have lost their parathyroids through operation.

Biological Stains Being Standardized

Biology

Special Commission Undertakes the Task

BRIGHTLY colored dyes with which scientists stain dangerous disease germs to make them visible are in need of standardization, and this important task is now going forward under the auspices of a special commission, the Commission on Standardization of Biological Stains. Reliability of the tests for identifying disease germs depends in many cases on the quality of the aniline dyes.

Describing the progress of the investigation and the significance of the dyes in diagnosing diseases, the commission explains the way in which dyes are used to detect the organism that causes typhoid fever.

No one cares to have his food handled by a person who carries living typhoid bacilli around with him, even though all clinical evidence of the disease in this individual may have been over months or years before. The detection of such "typhoid carriers" is assisted by certain aniline dyes. However, typhoid bacilli look almost exactly like certain other kinds of bacteria present in everyone's intestines, which have no relation to this disease. The similarity is so great that becteriologists were at a loss until the use of dyes was discovered as a means of telling them apart. Several different dyes have been employed in this way; but the most interesting perhaps is the red dye, fuchsin.

If a jelly-like culture medium of the right consistency is prepared and this dye added to it just before use, the bacteriologist finds that only a few kinds of bacteria can grow on it, including the typhoid germ and one or two others. When the medium is properly prepared it is not red but a light straw color, for the dye in it has been reduced and is therefore decolorized. Now of the two kinds of bacteria most like the typhoid organism, one restores the color of the dye to a bright red, another to a light pink; while the typhoid organism itself does not restore the color. Therefore the places where the typhoid organism has grown on this medium are white; but the growth of the other organisms is colored. In this way the distinction can be made and it is possible by the use of this medium to tell whether a person is a typhoid carrier.

Unfortunately, however, not all fuchsins on the market work well in this test. Some do not allow the proper coloration of the ordinary intestinal bacteria; others are too red even before inoculation. Just why these different lots are at fault is a question that scientists have not completely answered. The manufacturer is unable, therefore, to furnish a uniformly satisfactory product, and the bacteriologist would be often inconvenienced in the matter except for the assistance of the Commission on Standardization of Biological Stains.

This commission is a private, noncommercial, organization formed by certain scientists as representatives of various scientific societies. The commission has employed two different methods of standardizing the stains. The first is to determine the exact chemical nature of the dye satisfactory for any particular biological use and to furnish the manufacturer with such information. This is the ideal method and has been adopted whenever possible. In some cases a less satisfactory method of standardization has to be employed. The manufacturers have to submit samples that they think are all right, and members of the commission test them to see if they work. Approval is given only to those samples that are satisfactory and the manufacturer submits a new sample whenever it is necessary to make a new batch.

In this way it has proved possible to keep unsatisfactory lots of biological stains off the market. Now one can, for instance, buy a sample of fuchsin that has been approved by the Stain Commission, and be sure that it will work in the test above described for typhoid.

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Figurines Found in Ruins at Ur

Archæology

SLENDER, archaically - modelled little female figurines and the clay image of a flying bird, recently turned up in the ruins of Ur, may well be the idols of the ancient people whose doings disgusted Noah and provoked Yaveh into sending the Flood. At any rate, these images have been found deep in the soil under the ancient city, associated with the thick layer of mud deposited by the Deluge, by the joint expedition of the University of Pennsylvania Museum and the British Museum. A report of the discovery has just been received from C. Leonard Woolley, field director of the expedition.

The archaeologists have been digging downward with the determination of finding the city's lowest level, the virgin soil on which the first settlers put up their houses. They have almost reached it. They have pierced trial shafts through the remaining soil beneath their feet, bringing up pottery fragments and other evidences of human occupation for a little space, then nothing but clean sand, into which the shafts have been driven to a point two feet below sea level.

At a level considerably later than diluvial date, the diggers came upon evidences of industrial life in this ancient Mesopotamian city. Mr. Woolley tells of the discovery:

"Below our eighth building there came a change. No more walls of buildings appeared, and the soil was little more than a mass of broken pottery. The explanation was soon forthcoming. A brilliantly colored ring of red and green and pale yellow proved to be a burnt-out kiln of bricks lined with fire-clay, and in the ashes which filled it there were still the clay pots of the last firing. More kilns came to light, covering the whole area in successive levels; basins lined with cement bricks for the kneading of the clay, potters' tools made of baked clay and pebbles for burnishing the pots. It was a prehistoric factory, and the dense mass of sherds which buried the site was made from the 'wasters' discarded by the potter. As the kilns lay four deep the industry must have lasted for a long time."

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Just as light clothes make an individual appear larger, so light walls make a room appear larger.

A corner of the excavations at Meydum, showing how late comers burrowed intrusive graves into the solid masonry of a great mastabah.

Group of Mummies Found in Mastabah

Archæology

SPIDERWEBS 2000 years old form the delicate but authentic seal testifying to the genuineness of one of the greatest finds of mummy coffins ever made in Egypt. The coffins, according to a cablegram from Alan Rowe, field director of the University of Pennsylvania Museum expedition, do not constitute a regular burial, but are stacked up like boxes or crates in a series of five rooms within a mastabah or flat-topped tomb structure. Their inscriptions show that they date all the way from 2000 B. C. to almost the beginning of the Christian era.

The discovery was made at Meydum, the great national burying ground of the royalty and aristocracy of ancient Egypt. Why these ancient Egyptians should have hustled a troop of still more ancient dead into such unceremonious storage is not known as yet. It is however quite possible that the mummies were evicted from their proper rooms because other and later mummified comers wanted to sleep there. Egyptians had a bad habit of doing that; tomb curses, such as the one causing the present wave of superstition about Tut-Ankh-Amon's coffin, were a fairly common attempt at precaution against such usurpations of other men's graves.

Another bad habit that a lower class of ancient Egyptians had was the outright looting of the tombs. Fortunately, grave-robbers never found this cache of coffins, as the unbroken cobwebs show. None of the coffins has been robbed, though some of them are broken by falls of stone from the ceilings. As yet very little has been done toward the examination of the contents of the coffins, but a promise of what may be expected is given by a splendid head-net of gold worn by one mummy, over which is a golden flying scarab and a gilded mask. Many rare amulets and pendants, together with great quantities of beads, have already been recovered.

The coffins are not those of royalty, but rather those of well-to-do people of the times and their investigation will doubtless add greatly to our knowledge of Egyptian gentlefolk and prosperous middle-class people.

The find is declared to be one of the greatest groups of coffins ever unearthed at one time in Egypt, and the greatest collection of Ptolemaic mummies ever found in one tomb. Ptolemaic times in Egypt were of comparatively late date, when the land was ruled by the successors of the Macedonian ruler who followed Alexander the Great, and just prior to the day when Rome swallowed up the country as a province of its empire. Cleopatra was the last of the Ptolemies.

"Our first view of the great cache was through a small hole in the rock which suddenly appeared in the side of a more or less empty chamber of the pit," cabled Mr. Rowe. "Looking through the hole by means of a flashlight numberless coffins were seen stacked to the top of the chambers. The sight, in fact, was one of those rare ones which comes to the excavator perhaps once in his lifetime. Suspended from the ceiling were even the ancient cobwebs made by the spiders of twenty centuries ago."

So important is the new discovery in the opinion of Museum officials that Director Horace H. F. Jayne decided to advance the date of his departure for Egypt and sailed on March 1 in order to inspect the material as soon as possible. The pit is being guarded day and night pending his arrival and the further exploration of the chambers where the coffins were found.

Mr. Jayne will inspect the work of the Museum expedition which is clearing the great pyramid attributed to King Snefru who ruled Egypt about 2900 B. C., as well as the mestabah where the relatives of the king and nobles of the period are believed to be buried.

The owner of this mastabah was a clever individual, determined to outwit intruders. He had the Egyptian laborers who built the tomb cut an opening in the wall and constructed a brick stairway, such as might well lead down into the burial chambers. At the foot of the stairs came a drop of six feet, and beyond this surprise came a tunnel, with a blockade about midway of its length. And at the end of the tunnel—blank wall.

The clues all indicate that the tomb will eventually prove to be that of a royal person closely connected with the Pharaoh Snefru whose pyramid is nearby, the report explains. The tomb is in the form of a mastabah, a construction with sloping sides and flat top. The only mastabah at Meydum larger than that now being excavated belonged to the oldest son of Snefru.

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New Ape Fossil

A new fossil species of ape, quite unlike any now in existence, has been turned up out of the marly soil of southern France, at Sénèze, in the department of Haut-Loire. The animal is represented by a skull in fairly good condition, with the lower jawbone and almost all of the teeth still intact.

Prof. Charles Depéret of the University of Lyons, who has made a study of the skull, states that the animal was an old female. This is evidenced by the relatively small size of the eyeteeth, which are large in males, and by the worn condition of all the teeth, especially the molars.

The ape must have been a rather large animal, for the skull has a length of seven and a quarter inches over all, and the width over the cheek arches, one of which is now broken, was about four and one-half inches. The greatest height from the eyebrow ridge to the corner of the lower jaw, is five inches.

The skull is remarkable for the great protrusion of the face, which almost parallels that of the modern baboons. Prof. Depéret does not contend that the creature was an ancestor of the baboons, but cites the development of face and jaw as a case of "convergent evolution." In other respects the skull offers some suggestions of the snouted monkeys of Asia.

Prof. Depéret has named the new species *Dolichopithecus arvernensis.*

Paleontology
Science News-Letter, March 8, 1930

New Comet Departing

Peltier's comet, first located on Thursday, February 20, by L. C. Peltier, an amateur astronomer of Delphos, Ohio, is now departing from the neighborhood of the earth. It was already leaving when the discovery was made, E. C. Bower and F. L. Whipple, of the Students' Observatory of the University of California, have calculated. This announcement was made to Science Service by Dr. A. O. Leuschner, director of the observatory.

The calculations show that the comet approached nearest the sun on January 15, and was then about ten per cent. farther from that body than the earth. On February 15 it was the closest to the earth, only 20 million miles distant. Though nobody saw it, it was then about the tenth magnitude, visible in a moderate sized telescope. It was the eleventh magnitude when discovered, and will have decreased to below the thirteenth magnitude by March 9, so that it can only be seen with the largest instruments.

This is Mr. Peltier's second cometary discovery. In November, 1925, he discovered a previously unknown comet, but had to share the honor with a Polish astronomer named Wilk, who found it independently. Thus it was named the Peltier-Wilk comet. The new comet has been observed by Schwassmann and Wachmann, two astronomers at the University of Berlin and if it should prove that they made their observations before hearing of Mr. Peltier's discovery, their names will also be attached to the comet.

Astronomy
Science News-Letter, March 8, 1930

Warns of Icy Wings

Ice on airplane wings, the cause of many accidents in the past, may lose much of its terror with the aid of a new warning device developed at the United States Bureau of Standards. It does not prevent the formation of ice, but gives the pilot warning, by the shining of a red light on his instrument board, when conditions are such that ice is likely to form. Then he can take proper precautions, either landing, or going into a warmer layer of air.

Experiments have shown that ice forms at temperatures between 26 and 32 degrees Fahrenheit, when the airplane is flying in air that is saturated with water vapor. The instrument consists of a temperature-actuated switch, operating on a battery of pocket flashlight cells. When the dangerous temperatures are reached, the red light flashes. If it is cold and dry, the pilot can either ignore its warning, or switch it off, for then there is no danger, even at the low temperatures.

Aviation
Science News-Letter, March 8, 1930

Scientists on Radio

Radio listeners throughout the country will be able to hear prominent scientists give popular descriptions of their work when a new series of radio talks arranged by Science Service begins over the Columbia Broadcasting System. The first talk will be given on Friday, March 28, from 3:45 to 4:00 p. m., Eastern Standard Time, by Dr. Warren S. Thompson, director of the Scripps Foundation for Research in Population Problems, located at Miami University, Oxford, Ohio. Dr. Thompson has devoted many years to a study of population, and will speak on the subject "Our Future Population," particularly appropriate in this year of the census.

Other speakers, who will be heard on succeeding Friday afternoons include Dr. Paul R. Heyl, physicist at the Bureau of Standards, who will tell how he weighed the earth; Dr. C. G. Abbot, secretary of the Smithsonian Institution and leading authority on the sun, who will tell about "The Sun and Ourselves"; Dr. J. McKeen Cattell, eminent psychologist, speaking on the uses of his science; Dr. Kirtley F. Mather, Harvard University geologist, who will discuss the latest knowledge of the interior of the earth; and Commander N. H. Heck, of the U. S. Coast and Geodetic Survey, whose interesting subject will be "Earthquakes in the United States." All of the talks will be popular in style, so as to be of interest to a listener with no previous knowledge of the subject.

In presenting these talks over the Columbia Broadcasting System, Science Service is continuing work that it began in 1924. At that time, cooperating with the National Research Council, it aided in the first regular series of scientific radio talks ever presented. Also, at annual meetings of the American Association for the Advancement of Science, it has cooperated with that body in presenting talks by distinguished scientists in attendance. The new series will be the first regular series of scientific radio talks to go out over a nationwide network.

General Science
Science News-Letter, March 8, 1930

IN VARIOUS CI

Huge Telescope—Amateur

The world's largest telescope, made up of a battery of smaller telescopes, is under construction in Berkeley, Calif., at the home of Dr. C. W. Woodworth, University of California professor, who hopes to have it completed and in operation within a few months.

The big instrument, which will concentrate the power of 400 small telescopes, will have a reflecting surface nearly twice as large as the Mount Wilson reflector, the largest now known. The 200-inch telescope, now under construction for the California Institute of Technology, will have a reflecting surface more than twice its area, however.

Four hundred small mirrors, none larger than 15 square inches, will make

S CIENCE FIELDS

up the 100 square feet of reflecting surface of the telescope. The "eyepiece" of the instrument will be located on top of a garage, 40 feet high.

Dr. Woodworth's plan of concentrating the power of a large number of easily constructed small telescopes into one big instrument has never been tried on such a large scale and, if satisfactory, will permit much more economical construction of astronomical telescopes, it is said. The difficulty is to get all the mirrors to bring their images to a focus at precisely the same place. Otherwise clear view cannot be obtained.

Dr. Woodworth, who has been working on the telescope for the past three years, is doing all the work on his project, even to the grinding and silvering of the mirror units.

Astronomy
Science News-Letter, March 8, 1930

Sunned Yeast

Yeast that has had its chance to absorb the ultra-violet rays of sunlight has proved effective in keeping young chicks free from the disabling and often fatal disease of leg weakness, in experiments performed at the University of Wisconsin by Dr. Harry Steenbock, Dr. J. G. Halpin and Dr. G. E. Holmes. This disease, which is really a form of rickets, has been combated in the past by giving the chicks doses of codliver oil, but it is pointed out that irradiated yeast is cheaper, easier to mix with the ration, and less likely to leave undesirable flavors in the flesh of the young fowls.

Medicine—Animal Husbandry
Science News-Letter, March 8, 1930

Woman "Robinson Crusoe"

The story of a woman "Robinson Crusoe" who lived alone on an island for twenty long years is told by Dr. Roy L. Moodie, who has been delving into the records of old native life in the region of Santa Monica, Calif., in his study of prehistoric diseases in America.

The feminine Crusoe had been a member of a small group of Indians which lived on San Nicolas Island, off the California coast, about a hundred years ago. The Spanish fathers persuaded the group to leave their lonely island and find better protection at the Santa Barbara Mission. But this woman refused to come. All alone she demonstrated her self sufficiency in the world by making her home of whale ribs and brush, and by living off the abundant fish, abalones, birds, seals, and some plant products. She made her clothing of bird skins. When at last she was brought to the Mission she died within six weeks.

The island possesses many relics of aboriginal life, but none so romantic as the record of the Lost Woman, Dr. Moodie said.

Ethnology
Science News-Letter, March 8, 1930

Lack of Lenses

Difficulty in getting the right kind of glass for lenses is holding up the introduction of home television sets in England, a recent issue of *The Engineer,* a leading British technical publication, reports. It is expected that the sets will be available shortly. Each will contain a six inch and a four inch lens.

Television
Science News-Letter, March 8, 1930

Mystery River

In the hope of discovering the unknown, unmapped source of the Orinoco River, Dr. and Mrs. Herbert S. Dickey will set out next month on an expedition, under the auspices of the Museum of the American Indian, Heye Foundation.

No less than five previous expeditions have attempted to reach the source of this South American river of mystery, including one expedition by Dr. Dickey himself in 1928. Serious damage to his outboard motor boat forced him to retrace his way along the river without attaining his goal.

The source of the river is sought by Dr. Dickey not only as a missing link in geographical data, but also because he is eager to study the tribes of the region, present or ancient. There is a possibility that the people of the Orinoco source formed part of the old trail of migrants from the Amazon to the Orinoco, he explained. Explorers from the Museum of the University of Pennsylvania once found pottery on islands of the Amazon which was similar to pottery of the Orinoco.

Besides Dr. and Mrs. Dickey, both seasoned and enthusiastic explorers, the party will include Major De Forest Norton, formerly of the U. S. Army, a photographer and a wireless operator. The expedition plans to be off about March twentieth, and will devote six months to the quest.

Geography
Science News-Letter, March 8, 1930

Cancer Experiments

Although Dr. Walter B. Coffey and Dr. John B. Humber of San Francisco have been asked by the Senate Commerce Committee to come to Washington to explain their experimental work with a new cancer treatment, no definite date has been set for their appearance.

Their attendance in Washington has been requested by Senator Hiram W. Johnson, chairman of the committee, and Senator William J. Harris, who is chairman of the sub-committee which was formed last spring to investigate the possibilities and practicabilities of federal government aid in the matter of learning more about cancer and working out a cure through years of research work.

Dr. Francis Carter Wood of Columbia University Institute of Cancer Research, Dr. James Ewing of the Cornell University Medical School, Dr. H. Gideon Wells of the University of Chicago, and Dr. W. H. Howell, director of the Johns Hopkins School of Hygiene and Public Health, are some of the men prominent in cancer research who were heard by the committee last summer. These men told the committee how they thought the federal government could help to forward the cause of cancer investigation.

Drs. Coffey and Humber have recently announced successful results in the treatment of a few cases of cancer with an extract from the cortex of the adrenal gland of sheep. However, they stated in their report that the work was in the experimental stage. This fact was also emphasized in the editorial comment of the Journal of the American Medical Association, which warned that the method is far from being in the nature of a specific method of treating cancer leading to cure or alleviation. In spite of this, hundreds of sufferers from cancer are reported to have besieged the laboratory of Drs. Coffey and Humber in the hope of receiving the treatment.

Dr. Boris Sokoloff, who is now working in the laboratory of Dr. Leo Loeb, of the Washington Medical School at St. Louis, reported on a similar line of investigation at the International Physiological Congress at Boston last fall. Dr. Sokoloff told of the destructive effect on cancer of an extract of the adrenal cortex mixed with an iron salt and pyrrol blue. This work is also still in the experimental stage.

Medicine
Science News-Letter, March 8, 1930

Wingless Birds of New Zealand —A Science Classic

Biology

The wingless Kiwi and its enormous egg. Wallace points out that so long as each living thing was believed a special creation, it was thought that each was perfectly formed to fit its environment. But under the theory of evolution the ancestral forms of each creature and the steps by which the species was molded by its environment bring up a new set of problems for the biologist. New Zealand, Australia, and their neighboring islands with their strange and isolated floras and faunas present problems of exceptional interest.

ISLAND LIFE, or, the phenomena and causes of Insular Faunas and Floras including a revision and attempted solution of the problem of Geological Climates, by Alfred Russel Wallace. New York, 1881.

Almost equally valuable with mammalia in affording indications of geographical changes are the wingless birds for which New Zealand is so remarkable. These consist of four species of Apteryx, called by the natives "kiwis"—creatures which hardly look like birds, owing to the apparent absence (externally) of tail or wings and the dense covering of hair-like feathers. They vary in size from that of a small fowl up to that of a turkey, and have a long slightly curved bill, somewhat resembling that of the snipe or ibis. Two species appear to be confined to the South Island and one to the North Island; but all are becoming scarce, and they will, no doubt, gradually become extinct. These birds are generally classed with the Struthiones, or ostrich tribe, but they form a distinct family, and in many respects differ greatly from all other known birds.

But, besides these, a number of other wingless birds, called "moas," inhabited New Zealand during the period of human occupation, and have only recently become extinct. These were much larger birds than the kiwis, and some of them were even larger than the ostrich, a specimen of *Dinornis maximus* mounted in the British Museum in its natural attitude being eleven feet high. They agreed, however, with the living Apteryx in having four toes, and in the character of the pelvis and some other parts of the skeleton; while in their short bill and in some important structural features they resembled the emu of Australia and the cassowaries of New Guinea. No less than eleven distinct species of these birds have now been discovered; and their remains exist in such abundance—in recent fluviatile deposits, in old native cooking places, and even scattered on the surface of the ground, that complete skeletons of several of them have been put together, illustrating various periods of growth from the chick up to the adult bird. Feathers have also been found attached to portions of the skin, as well as the stones swallowed by the birds to assist digestion, and eggs, some containing portions of the embryo bird; so that everything confirms the statements of the Maoris—that their ancestors found these birds in abundance on the islands; that they hunted them for food; and that they finally exterminated them only a short time before the arrival of Europeans.

Past Changes of New Zealand Deduced from its Wingless Birds.—It has been well observed by Captain Hutton, in his interesting paper already referred to, that the occurrence of such a number of species of Struthious birds living together in so small a country as New Zealand is altogether unparalleled elsewhere on the globe. This is even more remarkable when we consider that the species are not equally divided between the two islands, for remains of no less than ten out of the eleven known species of Dinornis have been found in a single swamp in the South Island, where also three of the species of Apteryx occur. The New Zealand Struthiones, in fact, very nearly equal in number those of all the rest of the world, and nowhere else do more than three species occur in any one continent or island, while no more than two ever occur in the same district. Thus there appear to be two closely allied species of ostriches inhabiting Africa and Southwestern Asia respectively. South America has three species of Rhea, each in a separate district. Australia has an eastern and a western variety of emu, and a cassowary in the north; while eight other cassowaries are known from the islands north of Australia—one from Ceram, two from the Aru Islands, one from Jobie, one from New Britain, and three from New Guinea—but of these last, one is confined to the northern and another to the southern part of the island.

This law, of the distribution of allied species in separate areas—which is found to apply more or less accurately to all classes of animals—is so entirely opposed to the crowding together of no less than fifteen species of wingless birds in the small area of New Zealand that the idea is at once suggested of great geographical changes. Captain Hutton points out that if the islands from Ceram to New Britain were to become joined together, we should have a large number of species of cassowary (perhaps several more than are yet discovered) in one land area. If, now, this land were gradually to be submerged, leaving a certain elevated region, the different species would become crowded together in this portion, just as the moas and kiwis were in New Zealand. But we also require, at some remote epoch, a more or less complete union of the islands now inhabited by the separate species of cassowaries, in order that the common ancestral form which afterwards became modified into these species could have reached the places where they are now found; and this gives us an idea of the complete series of changes through which New Zealand is believed to have passed in order to bring about its abnormally dense population of wingless birds. First, we must suppose a land-connection with some country inhabited by Struthious birds, from which the ancestral forms might be derived; secondly, a separation into many considerable islands, in which the various distinct species might become differentiated; thirdly, an elevation bringing about the union of these

islands to unite the distinct species in one area; and, fourthly, a subsidence of a large part of the area, leaving the present islands with the various species crowded together.

If New Zealand has really gone through such a series of changes as here suggested, some proofs of it might perhaps be obtained in the outlying islands which were once, presumably, joined with it. And this gives great importance to the statement of the aborigines of the Chatham Islands that the Apteryx formerly lived there, but was exterminated about 1835. It is to be hoped that some search will be made here, and also in Norfolk Island, in both of which it is not improbable remains of Apteryx or Dinornis might be discovered.

So far we find nothing to object to in the speculations of Captain Hutton, with which, on the contrary, we almost wholly concur; but we cannot follow him when he goes on to suggest an antarctic continent uniting New Zealand and Australia with South America, and probably also with South Africa, in order to explain the existing distribution of Struthious birds. Our best anatomists, as we have seen, agree that both Dinornis and Apteryx are more nearly allied to the cassowaries and emus than to the ostriches and rheas; and we see that the form of the sea-bottom suggests a former connection with North Australia and New Guinea—the very region where these types most abound, and where in all probability they originated. The suggestion that all the Struthious birds of the world sprang from a common ancestor at no very remote period, and that their existing distribution is due to direct land communication between the countries they *now* inhabit, is one utterly opposed to all sound principles of reasoning in questions of geographical distribution; for it depends upon two assumptions, both of which are at least doubtful, if not certainly false—the first, that their distribution over the globe has never in past ages been very different from what it is now; and the second, that the ancestral forms of these birds never had the power of flight. As to the first assumption, we have found in almost every case that groups now scattered over two or more continents formerly lived in intervening areas of existing land. Thus, the marsupials of South America and Australia are connected by forms which lived in North America and Europe; the camels of Asia and the llamas of the Andes had many extinct common ancestors in North America; the lemurs of Africa and Asia had their ancestors in Europe, as did the trogons of South America, Africa, and tropical Asia. But, besides this general evidence, we have direct proof that the Struthious birds had a wider range in past times than now. Remains of extinct rheas have been found in Central Brazil, and those of ostriches in North India; while remains believed to be of Struthious birds are found in the Eocene deposits of England; and the Cretaceous rocks of North America have yielded the extraordinary toothed bird Hesperornis, which Professor O. Marsh declares to have been "a carnivorous swimming ostrich."

The gigantic Moa, famed in legends of the New Zealanders and extinct just before the coming of white men, was scoffed at by early naturalists until an accumulation of its remains substantiated the tradition of its existence. This figure from a painting by Charles R. Knight in the Field Museum of Natural History, Chicago, shows the way this flightless bird must have looked to the hungry aborigines.

As to the second point, we have the remarkable fact that all known birds of this group have not only the rudiments of wingbones, but also the rudiments of wings; that is, an external limb bearing rigid quills or largely developed plumes. In the cassowary these wing-feathers are reduced to long spines like porcupine-quills, while even in the Apteryx the minute external wing bears a series of nearly twenty stiff quill-like feathers. These facts render it probable that the Struthious birds do not owe their imperfect wings to a direct evolution from a reptilian type, but to a retrograde development from some low form of winged birds, analogous to that which has produced the dodo and the solitaire from the more highly developed pigeon-type. Professor Marsh has proved that, so far back as the Cretaceous period, the two great forms of birds—those with a keeled sternum and fairly developed wings, and those with a convex keelless sternum and rudimentary wings—already existed side by side; while in the still earlier Archæopteryx of the Jurassic period we have a bird with well-developed wings, and therefore probably with a keeled sternum. We are evidently, therefore, very far from a knowledge of the earlier stages of bird-life, and our acquaintance with the various forms that have existed is scanty in the extreme; but we may be sure that birds acquired wings and feathers, and some power of flight, before they developed a keeled sternum, since we see that bats with no such keel fly very well. Since, therefore, the Struthious birds all have perfect feathers, and all have rudimentary wings which are anatomically those of true birds, not the rudimentary forelegs of reptiles, and since we know that in many higher groups of birds—as the pigeons and the rails—the wings have become more or less aborted, and the keel of the sternum greatly reduced in size by disuse, it seems probable that the very remote ancestors of the rhea, the cassowary, and the Apteryx were true flying birds, although not perhaps provided with a keeled sternum, or possessing very great powers of flight. But, in addition to the possible ancestral power of flight, we have the undoubted fact that the rhea and the emu both swim freely, the former having been seen swimming from island to island off the coast of Patagonia. This, taken in connection with the wonderful aquatic ostrich of the Cretaceous period discovered by Professor Marsh, opens up fresh possibilities of migration; while the immense antiquity thus given to the group, and their universal distribution in past time, render all suggestions of special modes of communication between the parts of the globe in which their scattered remnants *now* happen to exist altogether superfluous and misleading.

Astronomers Prepare for Total Eclipse

Astronomy

U. S. Naval Observatory Will Send Party to Niuafou

WHILE one of its offices is making last minute calculations of the path of total eclipse of the sun visible in California on April 28, other astronomers at the U. S. Naval Observatory in Washington, are preparing for an expedition to a remote island in the South Pacific to observe another total eclipse on October 21.

Niuafou Island, a tiny bit of land in the Tonga group, which lies in the triangle between Fiji, Tonga Samoa, is the only accessible location from which the October eclipse can be seen. It is not much frequented by travelers, for the ordinary contact with the outside world for its few hundred inhabitants is a tin can full of mail thrown overboard by the monthly inter-island steamer. A native swims out and gets the can, which has given Niuafou the local name of "Tin Can Island."

Despite its inaccessibility, the Naval Observatory has decided to sponsor an expedition there to observe the eclipse, Capt. C. S. Freeman, superintendent of the observatory, told Science Service. This will not be strictly a Naval Observatory expedition, however, for astronomers from various American observatories will participate. Dr. S. A. Mitchell, director of the Leander McCormick Observatory of the University of Virginia and veteran of seven previous eclipses, will lead the party.

The remainder of the personnel is yet to be selected, said Capt. Freeman, but he especially desires some astronomers who can make photometric observations of the brightness of the eclipse. If some one can be found who is willing and able to make such observations, he will be given a place, it was stated.

Starting in the summer from San Francisco, the party will proceed to Pago Pago in American Samoa by naval transport, whence a smaller naval vessel will transport the party to Niuafou, several hundred miles distant.

Niuafou Island has recently been the scene of volcanic eruptions and earthquakes. Should they continue during the next few months, they will add considerably to the difficulties of observing the eclipse in this remote isle.

According to reports that have just reached Dr. T. A. Jaggar, director of the Hawaiian Volcano Observatory in Honolulu, an eruption last summer wrecked the village of Futu.

"Three craters burst open without warning to the south of Futu," said Dr. Jaggar. "The populace hurried to Agaha, the larger village at the northwest, and took refuge on the high ground back of it. Their discomfort was increased by rain and wind."

According to Dr. Jaggar's informant, a chain of craters formed along the coast, each belching molten rock and deep red flames. Streams of lava swept to the sea, scorching vegetation to cinders. After the smoke cleared the next day it was found that 40 acres of new ground had formed, altering the contour of the coast line. The site of the village of Futu was a field of smoking lava, while the native houses had been battered to the ground by the blasts of hot wind. Fortunately no lives were lost.

"Niuafou is reported to have many earthquake shocks, 'almost of daily occurrence'," said Dr. Jaggar. "These are attributed by the natives to their god Maui, rocking the island by his troubled subterranean sleep. It is hard to imagine a better place for the study of silt and volcanic earthquakes, and this island is strategically placed for very interesting geophysical and oceanographic observations. There ought to be a seismograph station there with a permanent staff in close touch with the observatory at Apia, in British Samoa."

April 28 will bring the year's first total eclipse, and this is also occupying the attention of the Nautical Almanac Office at the Naval Observatory. This eclipse crosses California, Nevada and Idaho, but is of very short duration, and not nearly as favorable astronomically as the one in October. It will only last about a second and a half at most, and the path over which it will be total, where the dark disc of the moon hides the sun, will only be about half a mile wide, as compared to a width of perhaps a hundred miles for a really good eclipse.

Eclipse predictions are always a bit uncertain, owing to incomplete knowledge of the moon's motion, and the skill of the astronomers will be taxed in locating the exact path in advance. Calculations now being made are taking into consideration observations of the moon made as recently as last month, and it is hoped that no astronomer who is guided by their predictions will find himself outside the path of totality.

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Under natural conditions probably not more than five per cent. of the fish eggs that are laid are fertilized, while in fish hatcheries 80 to 90 per cent. of the eggs are fertilized and the resulting young reared to suitable size for planting.

Carloads of scrap films from Hollywood are shipped to refineries so that the silver in them may be recovered.

Until 1892, the largest telephone cable contained only 50 pairs of wires; whereas a cable has now been perfected which contains 3,636 wires, packed within a diameter of only two and five-eighths inches.

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NATURE RAMBLINGS

By Frank Thone

Nobody Loves Him!

Except for furriers, to whom his hide is valuable, nobody has a good word to say for the wolverine, one of the largest of the weasel-like carnivores. He is about the most thoroughly condemned and disliked of all animals. Even other animals, which as a rule are tolerantly indifferent to each other when there is no question of hunter or hunted, join man in his ill opinion of this heavy-bodied, surly, dirty beast.

The wolverine's ill name is not undeserved; it comes as a direct result of his ill nature. He is as greedy as a pig (whence his other name of "glutton"); he stinks like a skunk, without waiting, as the skunk does, until he is gratuitously annoyed; he is as surly as a grizzly bear and as truculent as a bobcat; he is as selfish as the traditional dog in the manger.

Trappers, even when they covet his hide and plot to possess themselves of it, hate the wolverine. He has a most diabolical cunning about robbing traps, and will put out of commission a whole line of them which may have cost many hours of hard work to set and bait. He also has an evil way of setting upon trapped animals and killing and eating them, which from the trapper's point of view is an even greater sin.

Much objuration has been heaped upon the wolverine's head because of his filthy way of befouling any food which he has killed or stolen and cannot eat at the moment. This is sometimes laid to sheer malice, but it is more likely that the wolverine is only making a cache for his own future use, and insuring against raids by other animals.

Science News-Letter, March 8, 1930

Experts on old patchwork quilts examine the cotton wadding in estimating the age of the quilt, knowing that after the cotton gin was invented in 1792 there were fewer seeds in wadding.

Tannic Acid Treatment Helps Burns

Medicine

RECOVERY of greater numbers of child victims of burns may result from wider application of a new method of treatment, making use of tannic acid, it appears from recently reported experiments. The method was devised by Dr. Edward C. Davidson of Detroit. Recent successful results with it have been reported at the Edinburgh Hospital for Sick Children and the Royal Infirmary at Edinburgh.

Dr. Wilson found that the tannic acid treatment reduced the mortality from burns to about one-quarter of that observed in another comparable series of cases. As burns in children are especially apt to be fatal, these figures are particularly gratifying. The tannic acid solution is sprayed on the burned areas, which have first been thoroughly cleaned. No dressings are used and the burned area is dried, after the spraying, in hot air under a bed-cage. The spraying is repeated hourly as long as necessary.

The method controls the acute toxemia which sets in during the second stage of a burn. In the first stage there is slight shock. The second stage is characterized by a secondary shock of toxemia. This condition is due to the absorption into the blood stream of poisons set free in the severely damaged tissues.

Besides reducing the mortality, the tannic acid treatment reduces the severity of the symptoms at all stages and promotes rapid healing. It is also of especial value when considerable areas have been burned. Previously it was held that burns of 30 per cent. of the body surface in adults and 11 or 12 per cent. in children were almost sure to prove fatal. The results obtained in Dr. Wilson's series of cases led to the conclusion that burns of more than 60 per cent. of the surface in children will cause death from shock in a few hours; that when between 35 and 60 per cent. of the surface is affected the outcome depends on the degree of poisoning which has developed; but that when less than 35 per cent. of the surface is burned, the chances for recovery are good, provided treatment is begun within a few hours of the injury.

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Archaeology

Royal Society of Alexandria Discusses Plans

A SEARCH for the tomb of Alexander the Great is likely to be conducted at last in his namesake city. Howard Carter, explaining his plans for the coming season's final work at the tomb of Tutankhamen, expressed interest in seeking the tomb of Alexander after his excavations at the Valley of the Kings are ended. Residents of Egypt have countered with the suggestion that Egypt might well undertake this important search, and at present the need for locating Alexander's tomb is a much discussed topic.

The Macedonian conqueror who fought the greater part of his world and won it, died in Babylon. Plutarch stated that Alexander was taken to Alexandria and buried in a gold coffin. Another historian, mentions seeing a glass sarcophagus of Alexander as it was carried in a procession leading westward from the Euphrates River.

If the tomb is in Alexandria at all, it is most likely to be at the site of the Mosque of Nebi Daniel. Plans for excavating in this neighborhood were discussed at the annual meeting of the Royal Society of Alexandria, held this month. Prof. Breccia, curator of the Greco-Roman Museum at Alexandria, urged that the city undertake the excavations to unearth the tomb of its founder.

The neighborhood of the mosque is considered worthy of careful exploration, for it was the part of the ancient city where other rulers probably were buried. A granite pillar, still erect, was partly unearthed not long ago by workmen engaged in street repairs in this neighborhood, and this bit of evidence of ancient construction has further stimulated interest in scientific study of the place.

Doubt that Alexander was ever buried in Egypt has been expressed by a correspondent in the Egyptian Gazette, who cites reasons why the Greek hero would more likely have been taken back to his native town of Pella for burial. He points out that Perdicas was the most influential of Alexander's generals, and that this Perdicas would not have taken the conqueror's body to Egypt, because Perdicas' arch-rival was Ptolemy of Egypt. The cortege moving westward, might well have been heading towards a port to embark for the Macedonian town of Pella, he contends.

Science News-Letter, March 8, 1930

Parathyroid Glands—*Continued*

tissues is upset so that there is increased alkalinity of blood and tissues.

Sometimes children develop tetany spontaneously without removal of the parathyroids or any known injury. This condition is known as idiopathic tetany. The symptoms are similar to tetany in adults following removal of the glands. This form of tetany is often associated with rickets, which also makes it seem likely that the parathyroids in some way control the calcium supply of the body. In rickets it is generally held that there is a deficiency of calcium in the bones. Children with rickets get bow-legs and other bony deformities because not enough calcium goes into the bones and consequently they are soft and become bent out of shape when pressure, such as the weight of the body, is put on them. It may be that the children who get rickets are not getting enough calcium, or lime, into their bodies. It is also thought that even if they get enough calcium in food and water, they may not assimilate it properly if they do not get enough vitamin D, either in food or from the sun's rays. But some investigators now think that the assilimation of calcium, that is, its transference from food or water taken into the stomach to lime salts in blood and bones and muscles, is regulated entirely by the tiny, parathyroid glands. In that case the role played by vitamin D may be quite different.

"The study of cases of hyperparathyroidism may provide a clue to the nature of rickets," suggested Dr. Wilder in discussing the case of the young women who suffered from tumor of the parathyroids. The symptoms of osteitis fibrosa, the name for the condition of the bones which the young woman had, probably as a result of over-functioning of her parathyroid glands, are not unlike those of rickets. In the common form of rickets there is too much calcium in the blood serum and too little phosphorus, as is the case in osteitis fibrosa. Tumors and enlargement of the parathyroid glands have been found in cases of rickets.

Other investigators showed that the parathyroid glands of chicks became enlarged when the chicks were kept away from the sun's rays and were fed a ration poor in the antirachitic vitamin D. These observations have been confirmed.

The early history of the patient of Dr. Wilder's who suffered from a tumor of her parathyroids shows that she had had a capricious appetite ever since childhood. Consequently she had over-indulged in sweets and neglected vegetables, milk and cream. Probably she did not get an adequate amount of vitamin D, and while she escaped rickets in childhood she developed a condition similar to rickets later in life. When she was treated with ultraviolet light and a diet rich in vitamin D, marked gain in weight and strength and general improvement resulted. This, together with the results of the experiments with the chicks, suggested to Dr. Wilder that some antagonism exists between vitamin D and the parathyroids.

"It seems not unlikely that rickets, and osteitis fibrosa, may be due to over-function of the parathyroid glands and that the healing effect of vitamin D in these conditions may be due to inhibition of the parathyroid glands by this vitamin," Dr. Wilder concluded. Such a theory puts a new construction on previous ideas about the function of vitamin D. Further scientific investigations will doubtless provide the solution to the riddle of how rickets, tetany, calcium metabolism, vitamin D, and the parathyroid glands are related.

Science News-Letter, March 8, 1930

The Pueblo Grande de Nevada, known as the Lost City of the Moapa Valley, is to be investigated by government officials and archæologists.

A life insurance statistician says that we eat 30 per cent. more food than our grandfathers and 374 per cent. more sugar.

FIRST GLANCES AT NEW BOOKS

VOCATIONAL PSYCHOLOGY AND CHARACTER ANALYSIS—H. L. Hollingworth—*Appleton* ($3). A revision and combination of Dr. Hollingworth's earlier volumes on "Vocational Psychology" and "Judging Human Character." The student, employer, or general reader will find here the facts about pseudo-character analysis. He will acquire an up-to-date point of view on the old, traditional methods of choosing employees. And he will then be introduced to the methods of fitting round pegs into round holes that science has developed, and the still newer methods that are in the experimental stage.

Psychology
Science News-Letter, March 8, 1930

DIRECTORY OF RESEARCH ON HEAT TRANSMISSION—*Committee on Heat Transmission.* Much of engineering consists of getting heat from one place to another. The more knowledge of processes of transmission the greater the efficiency. This directory is only one evidence of the activity in promoting research displayed by the national Research Council's committee on heat transmission.

Physics—Engineering
Science News-Letter, March 8, 1930

EDUCATIONAL BIOLOGY—W. L. Eikenberry and R. A. Waldron—*Ginn* ($2.48). A textbook designed especially to fit the needs of the college or normal school student who expects to become a teacher, though not necessarily of biology. The carefully planned text and the diagrammatic illustrations are therefore alike calculated to present the subject-matter with especial reference to its relation to life in general. And the inclusion of a number of portraits of biologists still living helps to heighten the feeling that "this means something to *me.*"

Biology
Science News-Letter, March 8, 1930

YEAR BOOK, 1929—*Carnegie Institution of Washington.* The annual year books of the Carnegie Institution of Washington, of which this is No. 28, are veritable epitomes of much of the scientific research in the United States. The laboratory and research associates of this great research organization are farflung across the continent and its investigations extend even to other lands.

General Science
Science News-Letter, March 8, 1930

MAN HUNTING IN THE JUNGLE—G. M. Dyott—*Bobbs Merrill* ($5). Exploration and adventure in central Brazil as experienced by the expedition that went in search of Colonel P. H. Fawcett who with his son and another member of his party perished at the hands of hostile Indians.

Exploration
Science News-Letter, March 8, 1930

PRELIMINARY ARCHÆOLOGICAL SURVEY OF A PORTION OF THE TEXAS COAST, Part 1—George C. Martin ($1). The first of a group of four reports on Indian camp sites in Texas, by two amateur investigators, Wendell H. Potter and George Martin. Texas antiquities have been given comparatively little attention by professional archaeologists. This report stresses the fact that along the coast skeletons are carried off in large numbers by souvenir hunters, and that the geological conditions are such that many camp sites have been destroyed.

Archæology
Science News-Letter, March 8, 1930

CARE OF AGED PERSONS IN THE UNITED STATES—Florence E. Parker, Estelle M. Stewart, and Mary Conymgton—*U. S. Government Printing Office* (70c). Conditions at the 1,037 homes of which the U. S. Department of Labor was able to secure details are reviewed. The report is illustrated and comprehensive. It will be of value to social workers and also possibly to administrators and sponsors of such homes, for comparative purposes.

Sociology
Science News-Letter, March 8, 1930

VASCO DA GAMA—Sir George Scott—*A. & C. Black* ($1). The book is a short account of the explorer's life, one of the Peeps at Great Explorers series, and as such is intended for boys and girls. Unfortunately the author seems at times to forget the youth of his readers and writes somewhat as a critical commentator. The many references to the early Portuguese chroniclers and the discussion of their lives, motives and consequent accuracy as historians is doubtless valuable but somewhat confusing, particularly because of the many unfamiliar names. As a result this otherwise attractive book lacks the clarity and easy readability which it should have.

Biography
Science News-Letter, March 8, 1930

GETTING WELL AND STAYING WELL—John Potts—*Mosby* ($2). A new edition of Dr. Potts' splendid book for tuberculous patients, their families and physicians, and for public health nurses. The book is very readable and should continue to be a popular and very real help in preventing and curing tuberculosis. Because of the importance of early diagnosis and treatment, the first chapters of Dr. Potts' book, giving the earliest signs and symptoms of tuberculosis, could profitably be read by everyone.

Medicine
Science News-Letter, March 8, 1930

ROCK GARDEN PRIMER—Archie Thornton—*A. C. DeLaMare Co.* ($2). This little book is intended for the person who is going to have the fun of building and planting his own rock garden. It tells what materials to use, how to put them together, and what plants to put in when the whole is laid out and completed.

Horticulture
Science News-Letter, March 8, 1930

BIBLY STEEL TOWER FOR TRIANGULATION—Jasper S. Bibly—*Government Printing Office* (15c). To raise their line of vision above the curvature of the earth, the engineers of the U. S. Coast and Geodetic Survey must erect high towers at the triangulation points established in spinning the network of accurately determined positions which form the foundation of maps of this country. Details of construction and erection of these towers are given in this pamphlet.

Geology—Engineering
Science News-Letter, March 8, 1930

TWO OLD CASES REVIEWED—*Boston Society for Psychic Research* ($1). Two strange epileptics who lived in the nineteenth century and who mystified many witnesses by their apparent possession of supernatural powers. The life stories of these individuals, C. B. Sanders and Mollie Fancher, provide as interesting reading as any novel. The writer of the bulletin cites many anecdotes which, from the data available, could only be explained by the witnesses of those days as examples of telepathy, clairvoyance, and prophecy. A Mollie Fancher today would be a subject of great interest for neurologists and psychiatrists to study.

Psychic Research
Science News-Letter, March 8, 1930

First Glances at New Books—*Continued*

THE LIVING PAST—John C. Merriam—*Scribners* ($2). This is a collection of narrative essays that induct the reader into some of the significances of paleontology. And it is much more than this. It leaves you with the feeling that you have followed an invitation to come and look at a peculiar stone—and found yourself before an altar.

Paleontology
Science News-Letter, March 8, 1930

NEW GENERAL BIOLOGY—W. M. Smallwood, Ida L. Reveley and G. A. Bailey—*Allyn and Bacon* ($1.80). A textbook for classes in elementary biology. It is a revision of an earlier text by the same authors, but contains so many changes and so much new matter that it should be regarded more as an entirely new book.

Biology
Science News-Letter, March 8, 1930

PHILOSOPHY BY WAY OF THE SCIENCES—R. H. Dotterer—*Macmillan* ($4). College courses in philosophy are not as popular nowadays as they used to be when the classics dominated education. The great expansion of the physical sciences, and the domination of modern life by their application, has been held to blame. Now comes a professor of philosophy who by a strategic stroke takes the physical sciences into his own camp. In doing so he has good classical example, for both Antiquity and the Middle Ages, in the persons of Aristotle and Aquinas, did exactly the same sort of thing.

Philosophy
Science News-Letter, March 8, 1930

GERMAN FOR CHEMISTS—Louis De Vries—*Chemical Publishing Co.* ($3). The courses in literary German that most of us go through in college, if we elect German as our modern language, are valuable culturally, but equip us rather poorly for the struggle with technical German that comes with candidacy for the doctorate. In this book Prof. DeVries has assembled a number of typical papers on chemical subjects, written by such classic authors as Berzelius, Willstätter, Kekulé and Wohlgemuth, so that the hopeful graduate student may have subjects that will really interest him while he whets his teeth on the difficulties of German vocabulary and syntax.

Language Study
Science News-Letter, March 8, 1930

PROSPERITY: FACT OR MYTH—Stuart Chase—*Boni* (75c). The author of that popular work, "Your Money's Worth," takes up a vital, and ordinarily weighty, subject and repeats his success in showing the reader that economics may be entertaining.

Economics
Science News-Letter, March 8, 1930

AN INTRODUCTION TO THE STUDY OF BIRD BEHAVIOUR—H. Eliot Howard—*Macmillan* ($14). This volume can be held up as a beautiful example of how natural history observations should be carried on and how their results should be published. The author, concerned with the sexual behavior of birds, studied several species closely, letting no minute detail escape his attention. He set his observations and conclusions down in such vivid and lucid language that even the non-ornithologist is compelled to follow, once he reads two sentences. He enlisted the aid of an artist to make drawings that are triumphs of draftsmanship as well as accurate portrayals of phases of bird behavior. And finally he entrusted the making of his book to a publisher capable of doing justice to the manuscript, in print, in stock, in binding. It comes near being a perfect book.

Ornithology
Science News-Letter, March 8, 1930

JOHNS HOPKINS, A SILHOUETTE—Helen Hopkins Thom—*The Johns Hopkins Press* ($2.75). A short account of the life and character of the man who founded the two notable institutions that bear his name, written by his grandniece. The author's affection for her distinguished kinsman enables her to give a delightful picture of him, so that after reading the small volume one hopes the silhouette will be followed by a life-sized portrait of this remarkable man, who during his lifetime was a significant figure in the world of business and finance, and since his death has become an even more important figure in the scientific and educational world.

Biography
Science News-Letter, March 8, 1930

NEW WORLDS TO CONQUER—Richard Halliburton—*Bobbs-Merrill* ($5). Those who have enjoyed Mr. Halliburton's earlier books will be glad to read this account of his adventures when he followed the paths of the early Spanish explorers in Central and South America.

Travel
Science News-Letter, March 8, 1930

OCCUPATIONS FOR COLLEGE WOMEN—Chase Going Woodhouse and Ruth Frances Yeoman—*North Carolina College for Women* ($2). A large and apparently comprehensive bibliography of articles and books that might help the college woman to choose her vocation or profession. The volume should also be decidedly helpful to vocational counselors and personnel directors. It covers about twenty general fields, with numerous subdivisions, and also covers material on personnel work in colleges and vocational tests. The Institute of Women's Professional Relations sponsored the publication.

Vocational Guidance
Science News-Letter, March 8, 1930

DIRECTORY OF HOMES FOR THE AGED IN THE UNITED STATES—*U. S. Government Printing Office* (15c). A useful reference pamphlet for social workers, published by the U. S. Department of Labor. The directory gives names and addresses, sponsoring organizations, capacities and entrance requirements of over a thousand homes.

Sociology
Science News-Letter, March 8, 1930

INTRODUCTION TO ABNORMAL PSYCHOLOGY—V. E. Fisher—*Macmillan* ($2.60). A very clear and logical arrangement of material for use of students in introductory classes. The author takes the view that "mental abnormalities can be most adequately understood and dealt with when viewed as disorders of the personality, of the individual as an integration, rather than as disorders of various mental processes or reactions."

Psychology
Science News-Letter, March 8, 1930

THE THORACIC MECHANISM OF A GRASSHOPPER, AND ITS ANTECEDENTS—R. E. Snodgrass—*Smithsonian Institution* (55c.). The thorax, that highly important central body region of the insect to which its six legs and four wings are attached, presents many difficult problems in morphology and physiology, and therefore also in evolution. In this essay Mr. Snodgrass offers some interesting and pertinent suggestions on the function and possible origins of a number of its structures.

Entomology
Science News-Letter, March 8, 1930

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